R E P O R T R E S U M E S

ED 014 778 CG 001 028

THE EFFECTS OF SUCCESS AND FAILURE AND PERSISTING MOTIVATION.

BY- WEINER, BERNARD

PUB DATE SEP 67

EDRS PRICE MF-$0.25 HC-$0.52 11P.

DESCRIPTORS- *MODELS, *MOTIVATION, *BEHAVIOR, CONCEPTUAL SCHEMES,

ATKINSON'S 1957 MODEL AND HIS MODIFIED 1964 MODEL ARE MODELS FOR THE DETERMINANTS OF ACHIEVEMENT-RELATED BEHAVIOR. ONE COMPONENT OF THE 1964 MODEL, INERTIAL GOAL TENDENCY, CAPTURES THE IDEA THAT MOTIVATION, ONCE AROUSED, PERSISTS UNTIL SATISFIED. THE INFLUENCE OF UNSATISFIED MOTIVATION HAS BEEN BOTH HYPOTHESIZED AND DEMONSTRATED. EXPERIMENTS INDICATE THAT ATKINSON'S 1964 MODEL NEEDS TO BE ALTERED TO INCLUDE THE FACILITATIVE EFFECTS OF FAILURE ON HIGH ACHIEVEMENT-ORIENTED SUBJECTS AND THE DEBILITATING EFFECTS OF FAILURE ON LOW ACHIEVEMENT-ORIENTED SUBJECTS. IT WAS POSTULATED THAT BOTH APPROACH AND AVOIDANCE MOTIVATION PERSIST FOLLOWING FAILURE FOR HIGHLY ANXIOUS SUBJECTS. THERE IS A RESULTANT INERTIAL TENDENCY IN THE MODEL. FINDINGS OF STUDIES UTILIZING OLDER MODELS AND THE NEWER MODEL APPEAR TO INDICATE THAT SITUATIONAL AND INERTIAL DETERMINANTS OF BEHAVIOR MUST BE SEPARATED. INTERACTIONS BETWEEN THE EFFECTS OF SUCCESS AND FAILURE ON DIFFERENT MOTIVE GROUPS MUST ALSO BE EXPECTED. THIS PAPER WAS PRESENTED AT THE AMERICAN PSYCHOLOGICAL ASSOCIATION CONVENTION, WASHINGTON, D.C., SEPTEMBER 1967. (SK)

ED014778

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION
THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL OFFICE OF EDUCATION POSITION OR POLICY.

The effects of success and failure and persisting motivation

Bernard Weiner[1]

University of California, Los Angeles

The participants in the symposium primarily have discussed components in a model for achievement-related behavior formulated by Atkinson in 1957. The original impetus for my work was Atkinson's reformulation of this 1957 model. The theoretical modifications were first outlined in a paper by Atkinson and Cartwright in 1964, and subsequently elaborated in Atkinson's 1964 book, An Introduction of Motivation. In that book Atkinson suggests that the strength of motivation to engage in achievement-related activities is determined by two sources of motivation. One source is attributable to immediate personal and situational factors, that is, to the motivation aroused by the immediate stimulus situation. The second source is attributable to past unsatisfied motivation, or "inertial" tendencies. The 1957 model and the modified 1964 model of the determinants of achievement-related behavior are shown under #1A and #1B in your handout. The component symbolized as T_{Gi} in the 1964 model, or the inertial goal tendency, captures the idea that motivation, once aroused, persists until satisfied. Lewin, with his conception of enduring tension systems, and Freud, who postulated the persistence of unsatisfied wishes, in part provided the historical antecedents for Atkinson's 1964 development. The model shown under #1B indicates that behavior is in part determined by past deprivations (T_{Gi}) as well as the immediate stimulus situation.

The influence of unsatisfied motivation has been demonstrated by Lewin and his students in their classic studies of the recall and resumption of interrupted activities. In addition, Amsel and his colleagues have shown that running speed increases following nonattainment of an expected food reward, and many other investigators have reported that bar-pressing responses

initially increase during extinction following 100% reward during training. Thus, the motivating effects of unsatisfied motivation have been reported in experimental investigations.

An inertial motivational tendency also has been demonstrated in a study of achievement behavior which I reported in 1965. That study separated the motivational effects of inertial tendencies from the motivational effects of the immediate environment. Subjects classified as high or low in resultant achievement motivation received either continual success or continual failure at a digit-symbol substitution task. For subjects in the repeated failure condition, the initial probability of success at the task was presented as .30; for subjects receiving continual success, false norms conveyed that the initial probability of success at the task was .70. #2A on the handout shows that for groups with comparable motive scores, the 1957 model specifies that the strength of motivation to undertake the task initially is equal in the success and failure conditions. This is because the probability values of .3 and .7 are symmetrical around the level of intermediate difficulty; both are .2 from the .5 level. #2B on the handout, which is on page 2, illustrates what happens when the groups respectively succeed when the probability is .7, and fail when the probability is .3. Making a strong assumption that the magnitude of the change in probabilities is equal but in opposite direction in the two conditions (for example, plus or minus .1) we see that the strength of motivation for groups with comparable motive scores again is theoretically equal according to the 1957 model. However, if unsatisfied motivation persists, then performance should be greater in the failure than success condition. The 1957 and 1964 models therefore lead to different predictions. The data from the study indicated that for subjects <u>high</u> in resultant achievement motivation, persistence and intensity of performance tended to be greater following failure than after success, supporting the 1964 conception. Note that this experimental design separated inertial motivation from

the motivation aroused by the stimulus situation. The environmental source of motivation was identical in the success and failure conditions, but the strength of the inertial source was greater after failure than after success.

Two alternative explanations can be offered to explain the reported results. It can be argued that the probability of success increases more after success than it decreases following failure. Then the results would be consistent with derivations from the 1957 model. However, evidence indicates that probabilities shift more after failure than success (see Feather and Saville, 1967). Appealing to differential changes in probabilities cannot account for the results. A second argument designed to keep the 1957 model relatively unaltered specifies that probability and incentive at times may be independent. However, if this were the case, then performance again should be greater after success than failure. None of the alternative solutions proposed thus far are adequate other than the inertial conception.

I have reported only the results for subjects high in resultant achievement motivation, or subjects in whom the motive for success is greater than the motive to avoid failure. When we examined the data for subjects low in resultant achievement motivation, (subjects considered to be relatively anxious). we found that persistence and performance were greater after success than after failure. How can the model which includes a persisting tendency handle such evidence? That is, how can the 1964 conception be altered to account for the facilitative effects of failure on high achievement-oriented subjects, and the debilitating effects of failure on low achievement-oriented subjects?

To incorporate the data for highly anxious subjects within the 1964 model, it is postulated that both approach and avoidance motivation persist following failure. For high achievement-oriented individuals, greater approach than avoidance achievement motivation is aroused in achievement situations. Hence, greater approach than avoidance motivation will persist after nonattainment

of the goal. The inertial goal tendency will then be positive, and facilitate performance. Conversely, for subjects relatively anxious about failure, greater avoidance than approach achievement motivation is aroused in achievement situations. Hence, more avoidance than approach motivation will persist following failure. The inertial goal tendency will then be negative, or inhibitory, and will cause subsequent performance decrements. These statements are summarized in #3 on the handout.

What are some of the implications of including a resultant inertial tendency in the model, where T_{G1} is positive for high achievement-oriented subjects, and negative for low achievement-oriented individuals? #4 on the handout indicates how the inertial and environmental components in the model combine to affect performance. For subjects high in achievement motivation, motivation is maximized when probability of success is .50, and there have been prior failures (Quadrant I). This same constellation of factors minimizes motivation for subjects low in achievement motivation (Quadrant IV). For high achievement-oriented individuals, motivation is minimized when probability of success is 1 or 0, and there have been no prior failures (Quadrant III). This combination of factors maximizes motivation for low achievement-oriented individuals (Quadrant II).

#5 combines the information outlined in #4 on the handout. #5 shows that to obtain <u>maximum performance differences</u> between groups high and low in achievement motivation, they should undertake a task whose probability of success is .5, after receiving prior failures (Quadrant I vs. Quadrant IV). This compares performance when maximum approach motivation is aroused for high achievement-oriented subjects with performance of low achievement-oriented subjects when maximum inhibition is aroused. Minimal differences between motive groups are expected when they undertake an easy or difficult task after having no prior failures (Quadrant II vs. Quadrant III). Intermediate

differences in performance are expected in other motivational combinations.

In a study published in 1965, Weiner and Rosenbaum found the expected rank-order differences in performance specified in #5. Subjects were allowed a continual free-choice between a puzzle task and a nonachievement-related picture task. Subjects in three experimental groups primarily succeeded, primarily failed, or received equal amounts of sucess and failure at the puzzle task. According to #5, the repeated success condition should minimize choice differences between the groups, inasmuch as probability of success approaches 1 and there are no prior failures.the intermediate task condition with some failures should maximize differences, for probability of success approaches .5 and there are prior failures: and the task with a probability approaching 0 and many failures should cause intermediate motivational differences between the motive groups. The differences in the percentage choice of puzzles as opposed to pictures between the high and low achievement-oriented groups is shown in #6 on page 3, and supports the derivations outlined in #4 and #5.

Recently, further evidence has been accumulated which also supports the inertial conception presented here. These experiments are presently being prepared for publication. In one study, subjects high or low in resultant achievement motivation had a repeated choice between two puzzle tasks. In one condition choice was between a task which was solved approximately one-half the time, and a type of task which was always solved. In a second condition the two motive groups were given a choice between the task which was solved one-half the time, and a type of task which was repeatedly failed. That is, an easy or difficult task served as an alternative to undertaking a task of intermediate difficulty. Derivations from #4 and #5 indicate that low achievement-oriented subjects will prefer the easy to the intermediate difficulty task, while high achievement-oriented subjects will prefer the intermediate to the easy task. Hence, choice of the intermediate task should be greater for the high than low achievement subjects. On the other

hand, when the alternative task to the one of intermediate difficulty involves repeated failures, the differential preference for the intermediate task should be greatly diminished. The data, shown in #7, support this expectation.

This experiment again indicates that Atkinson's 1957 model must be altered to include an inertial component which may be positive or negative in character. The 1957 model led to the prediction that there would be equal differences in choice behavior in the two conditions. This is because the repeatedly solved and repeatedly failed alternative are theoretically equally attractive according to the 1957 conception; they are symmetrical around the .50 level. That model errs in not accounting for the asymmetrical effects of success and failure experiences.

Another recent experiment can only be mentioned here. Feather's well-known 1961 study of persistence was expanded to include repeated success as well as repeated failure conditions. Our findings indicate that Feather's results appear to have been caused by the failure manipulation per se, in addition to the changes in probability which occur because of failure.

In summary, in future studies situational and inertial determinants of behavior must be separated, and one must expect interactions between the effects of success and failure on the different motive groups. Success generally enhances the motivation of highly anxious subjects, while failure inhibits their subsequent performance. On the other hand, for subjects highly motivated to achieve, success appears to cause subsequent "relaxation:, whiel failure facilitates future perfomance.

References

Amsel, A. The role of frustrative non-reward in a continuous reward situation. Psychological Bulletin, 1958, 55, 102-119

Atkinson, J.W. Motivational determinants of risk-taking behavior. Psychological Review, 1957, 64, 359-372.

Atkinson, J.W. An introduction to motivation. Princeton: D. Van Nostrand, 1964.

Atkinson, J.W. and Cartwright, D. Some neglected variables in contemporary conceptions of decision and performance. Psychological Reports, 1964, 14, 575-590.

Feather, N.T. The relationship of persistence at a task to expectation of success and achievement related motives. Journal of Abnormal and Social Psychology, 1961, 63, 552-561.

Feather,N.T. and Saville, M.R. Effects of amount of prior success and failure on expectations of success and subsequent performance. Journal of Personality and Social Psychology, 1967, 5, 226-232.

Freud, S. (1915) Instincts and their vicissitudes. In Collected papers, Vol. IV. London: Hogarth, 1949.

Lewin, K. A dynamic theory of personality. New York: McGraw-Hill, 1935.

Weiner, B. The effects of unsatisfied achievement motivation on persistence and subsequent performance. Journal of Personality, 1965, 33, 428-442.

Weiner, B. The role of success and failure in the learning of easy and complex tasks. Journal of Personality and Social Psychology, 1966, 3, 339-343.

Weiner, B. Conceptions of achievement motivation and supporting empirical evidence. (in preparation).

Weiner, B. and Rosenbaum, R.M. Determinants of choice between achievement and nonachievement-related tasks. Journal of Experimental Research in Personality, 1965, 1, 114-122.

Footnotes

1. Address given at the meetings of the American Psychological Association, September, 1967 as part of a symposium entitled: A theory of achievement motivation: problems and new developments.

The effects of success and failure and persisting motivation

Bernard Weiner

University of California, Los Angeles

1.

A. 1957 model for achievement-oriented behavior: behavior is a function of motivation aroused by the immediate stimulus situation

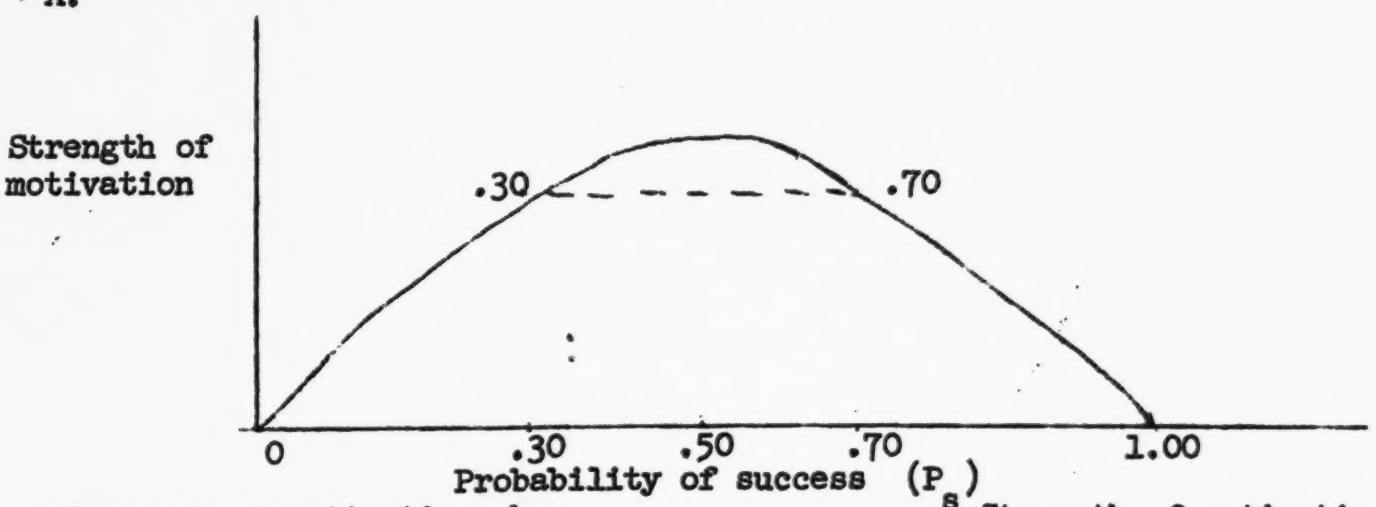
$$T_A = (M_S \times P_s \times I_s) - (M_{AF} \times P_f \times I_f)$$

B. 1964 model for achievement oriented behavior: behavior is a function of immediate aroused motivation plus persisting tendencies.

$$T_A = (M_S \times P_s \times I_s) - (M_{AF} \times P_f \times I_f) + T_{Gi}$$

2. From Weiner, B. The effects of unsatisfied motivation on persistence and subsequent performance. Journal of Personality, 1965, 33, 428-442.

A.



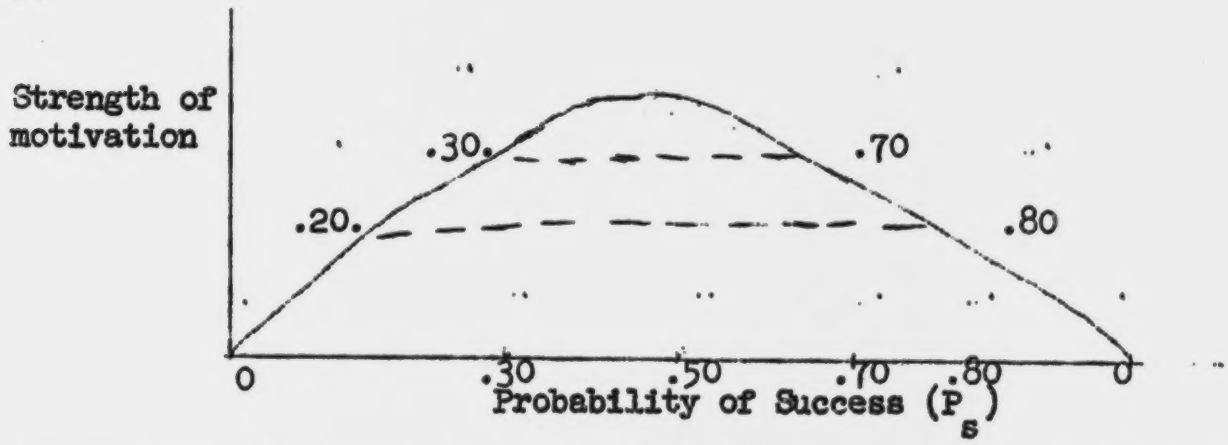
Strength of motivation when P_s= .30 (Failure conditon)

$(M_S \times .3 \times .7) - (M_{AF} \times .7 \times .3)$ = $(M_S \times .7 \times .3) - (M_{AF} \times .3 \times .7)$

Strength of motivation when P_s =.70(Success condition)

CG 001 028

B.



Assume that the change in P_s is +.1 after success, and -.1 after failure

	Failure condition	Success condition
1957 model	$(M_S \times .2 \times .8) - (M_{AF} \times .8 \times .2) =$	$(M_S \times .8 \times .2) - (M_{AF} \times .2 \times .8)$
1964 model	$(M_S \times .2 \times .8) - (M_{AF} \times .8 \times .2) + T_{Gi} >$	$(M_S \times .8 \times .2) - (M_{AF} \times .2 \times .8)$

3. When resultant achievement motivation is relatively high ($M_S > M_{AF}$), the resultant achievement oriented tendency (T_A) is positive, and the persisting inertial tendency after failure (T_{Gi}) will be positive.

   When resultant achievement motivation is relatively low ($M_{AF} > M_S$), T_A is negative (inhibitory), and T_{Gi} will be negative (inhibitory).

4.

	Motive Classification $M_S > M_{AF}$	$M_{AF} > M_S$
To maximize achievement motivation	$P_s = .50$ + (T_{Gi}) (I)	P_s = 1 or 0 No T_{Gi} (II)
To minimize achievement motivation	P_s = 1 or 0 No T_{Gi} (III)	$P_s = .5$ $-(T_{Gi})$ (IV)

5. To maximize performance differences between the high and low motive groups:

   $P_s = .50$ and prior failures ($\pm T_{Gi}$); (Quadrant I vs. Quadrant IV)

   To minimize performance differences between the high and low motive groups

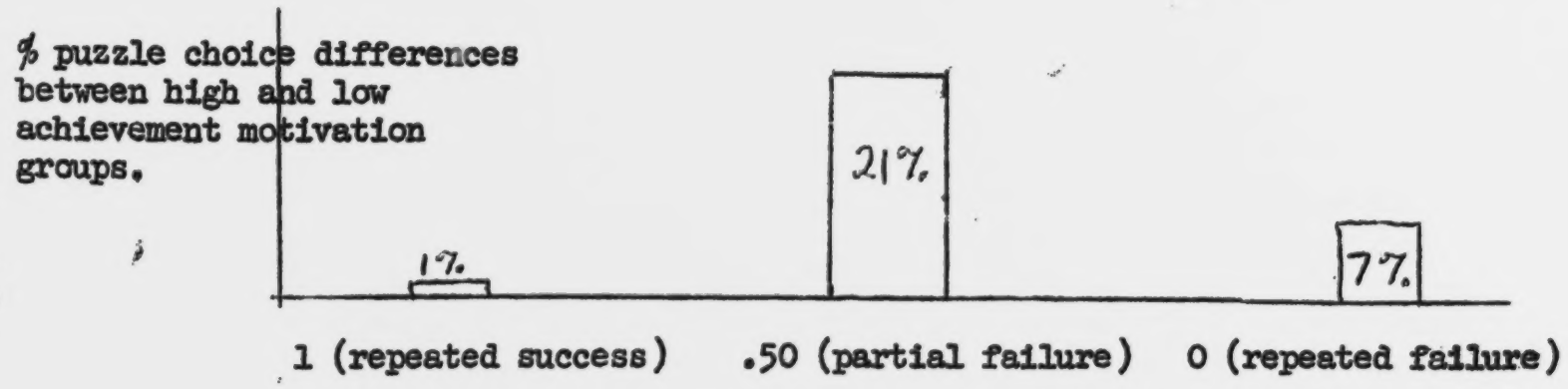
   P_s = 1 or 0, and no prior failures (no T_{Gi}); (Quadrant II vs. Quadrant III)

   For intermediate differences between the groups

   $P_s = .50$ and no prior failures (no T_{Gi}); or

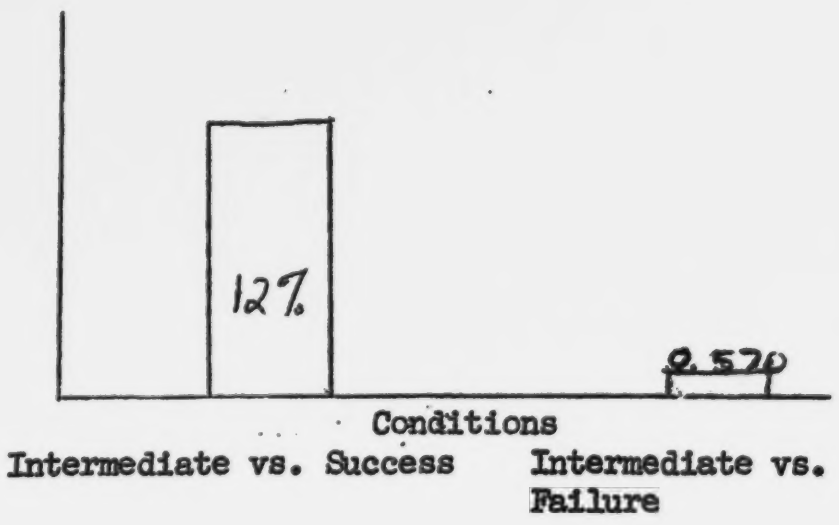
   P_s = 1 or 0 and prior failures ($\pm T_{Gi}$).

6. From Weiner, B. and Rosenbaum, R.M. Determinants of choice between achievement and nonachievement-related tasks. Journal of Experimental Research in Personality, 1965, 1, 114-122.



Subjects repeatedly selected a puzzle (achievement) or picture (nonachievement) task. The figure illustrates the % choice of puzzles for high achievement-oriented subjects minus the % choice of puzzles for low achievement oriented subjects. In all conditions subjects high in achievement motivation select more puzzles than subjects low in achievement motivation. The greatest difference occurs when probability of success is .50 and there have been some failures; least differences in choice occur when probability of success approaches 1 and there have been repeated successes; intermediate differences occur when probability of success approaches 0 and there have been repeated failures.

7. From Weiner, B. Conceptions of achievement motivation and supporting empirical evidence (in preparation).


% choice differences between high and low achievement motivation groups of the task of intermediate difficulty.
12%
0.57%
Conditions
Intermediate vs. Success
Intermediate vs. Failure

Subjects select either an intermediate or easy task (left side of figure) in one conditon. In a second condition subjects select between the intermediate difficulty ask or a very difficult task (right side of figure). Figure illustrates the % choice of the intermediate task for subjects high in achievement motivation minus the % choice of the intermediate task for subjects low in achievement motivation. The figure shows that high achievement-oriented subjects choose more intermediate tasks than low achievement-oriented subjects when the alternative task always led to a correct solution. However, when the alternative task resulted in failure, there were little differences in choice behavior between the motive groups.